THURSDAY, AUGUST 19, 1897.

THE STORY OF AN INDIAN PROVINCE.

The North-Western Provinces of India. By W. Crooke, B.C.S. (retired). Pp. 361. (London: Methuen and Co., 1897.)

THIS book professes to be "an attempt to tell the story of one of the greatest of our Indian Provinces from the social point of view"; and no one who reads it will deny that the attempt has been completely successful. The author has had vast experience as an Indian official; he is well known as an authority on Indian religions and folk-lore (see the review in NATURE, April 22, 1897, of his work on "The Popular Religion and Folk-Lore of Northern India"), and, as Superintendent of the Ethnographical Survey of the N.W.P., he has had unique opportunities of studying the life and customs of the people. Lastly, he possesses the enviable faculty of being able to express the results of tedious and painstaking observations in a most readable form. In fact, we have here, in a nutshell, an amount of information which could only be obtained otherwise either by a similar experience or by a diligent study of many ponderous Blue-books. The style is easy and pleasant, and possesses no small merit from the literary point of view. The keen intelligent interest of the writer in his subject communicates itself to the reader, while his sympathy with the beauties of nature gives to the book something of the charm which characterises Bishop Heber's diary.

At the present time, especially, Mr. Crooke's work will be welcome as affording information on those serious questions which have of late excited an unusual degree of interest. Now that famine, plague, and, in some degree, disaffection, are taxing the resources of British administration, it is well to know what steps have been taken in times past to meet similar dangers and difficulties; and it is not too much to say that little doubt will be left in the impartial reader's mind that, whatever may have been the shortcomings of British rule, it has at least accumulated a vast store of knowledge and experience which enables it to cope, with a great degree of success, with calamities the effects of which would, in bygone ages, have been appalling beyond measure. And it must not be forgotten that, in India, there are many causes which combine to make progress not only slow and uncertain, but even sometimes dangerous. To take, for example, one of the difficulties which the ultra-conservative instinct of the people places in the way of the prevention of famine. Elsewhere the natural relief of a congested population is afforded by emigration, but—

"This people, again, definitely refuses to avail itself of that relief by emigration to less congested areas, which led the surplus population of Ireland to the American continent, and is now driving Italians to Brazil or Argentina, and the Chinaman to the Malay Peninsula and the islands of the Southern Sea. The State is thus here confronted with a problem which would tax the resources of the greatest governments. There is, perhaps, no more pathetic situation in the whole range of human history than to watch these dull, patient masses stumbling in their traditional way along a path which can lead only to suffering, most of them careless of the future, marrying and giving in marriage, fresh generations ever encroaching on the narrow margin which separates them from destitution."

Even greater obstacles to reform are those due to religious or social causes. Sanitary reform, for instance, must necessarily interfere with habits and customs all of which are sanctioned by a long tradition, and some of which are actually regarded as sacred.

"The progress made in sanitation during the last thirty years serves only to emphasise the fact that the task is of stupendous difficulty, that much of it is beyond the power of any Government to undertake unless it throws to the winds all considerations of finance and all regard for the prejudices of the people. . . . The constant crusade carried on to enforce some degree of cleanliness among the town population has undoubtedly been to some extent effective. . . . But as for a general crusade against filth in rural India the people will not endure it, and no Government in its senses would seriously propose to wage it."

Of course, if sanitation is not to be enforced, and if over-crowding is not to be prevented, how can plague be averted? And, as has been seen quite recently, the means of stamping out plague cannot be put into practice without grave risk of exciting the religious or caste susceptibilities of the people.

Some curious results come from the application of Western ideas to Eastern circumstances. We accept as fundamental axioms of law and justice the doctrines of the equality of all men in the eye of the law, and of the binding force of contracts legally made; and it is not imaginable that English government could prevail anywhere apart from these axioms. But it cannot be denied that rigid adherence to them has brought, and must necessarily bring, not only unpopularity to the Government, but also serious economic troubles to the people themselves. The first cause has, by completely upsetting all their ideas of the distinctions of caste, made British rule extremely distasteful to the nobility and higher classes generally.

"They disapprove of the cold impartiality of our law, which has abolished the traditional distinction between the gentleman and the menial, and makes it possible for the serf to drag the Rāja before one of our courts."

The second cause has results far more serious. We have had some instances recently in England of the power which the law, by enforcing the terms of a legal contract, gives to the usurer over his victim. But this abuse is in India carried to an extent of which we can have no conception.

"It is, in the opinion of the most competent authorities, not an exaggeration to say that three-fourths of the tenantry are indebted to the amount of a year's rent at least."

And the remedy for this terrible state of affairs, in which the most worthy portion of the community is surely being brought under the power of the least worthy? That is the problem which for many years has exercised, and is now exercising, many anxious minds, for on its solution the future prosperity of a great portion of India depends. Expedients innumerable have been suggested, and some of these cures have made the disease worse.

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"We ourselves did try a form of usury law, but with the natural result. It was evaded wholesale by necessitous debtors, and the simple device was adopted of tacking on the prohibited interest to the original loan. . . . A native ruler of the old type would probably begin by putting half a score of usurers to death by slow torture; but this is not our way, nor would it in this case do much good except to check money-lending for a season. We are on the horns of a dilemma. We believe in the sanctity of contract, but we loathe Shylock, and writhe at seeing the peasant come shorn out of his clutches."

As an interesting and clear account of these and innumerable other questions affecting the welfare of the people, Mr. Crooke's book is greatly to be commended. The stay-at-home Englishman is, and always has been, inclined to lay down some system of theoretical perfection for the government of our great Eastern dependency. He will learn here that there are too many causes of friction—the opposing interests and prejudices of different religions, different races, and different castes—to admit of any perfectly smooth working of the great machine of Government. For the sake of peace and practical expediency it is necessary to yield a little here and a little there, and to moderate the rate of progress to suit the conditions of the case.

A really weak point in an otherwise altogether admirable work is that portion of Chapter ii. which deals with the history of the province from the earliest times down to the Muhammadan conquest. Mr. Crooke has not consulted the latest authorities on this subject; and in not doing so, he has made a mistake which is all the more serious because, as it happens, the study of inscriptions and coins has, within the last few years only, brought to light a very considerable amount of historical information. Very few of the dates for the earliest period given by Mr. Crooke are accepted by scholars nowadays. The initial year of the Gupta era is, for instance, no longer regarded by any one as lying between the years 160 and 170 A.D. For this statement Mr. Crooke quotes Mr. Vincent Smith: "the most recent authority on the gold coinage of the Guptas." Mr. Vincent Smith is still entitled to this designation; but, between the date of the work to which Mr. Crooke refers and the date of publication of Mr. Crooke's book, he has contributed a number of articles to learned periodicals, in which he has accepted the years 319-20 A.D. as the starting-point of the Gupta era Again, a great deal more is known now about the different Scythic invasions of Northern India and their dates than would be inferred from Mr. Crooke's account. In a word, this portion of the book—unimportant though it may be from the author's point of view—is altogether unsatisfactory, and should be entirely rewritten in a new edition.

It remains only to notice that the work is admirably printed, bound, and illustrated.

CHEMICAL EQUILIBRIUM.

The Phase Rule. By Wilder D. Bancroft. Pp. viii + 255. (*The Journal of Physical Chemistry*, Ithaca, New York, 1897.)

IN the preface to this book the author says:—

"My idea is that all qualitative experimental data (referring to chemical equilibrium) should be presented as particular applications of the Phase Rule and the Theorem of Le Chatelier, while the guiding principles for the classification of quantitative phenomena should be the Mass Law and the Theorem of van 't Hoff. In this book I have tried to present the subject of qualitative equilibrium from the point of view of the Phase Rule and of the Theorem of Le Chatelier, without the use of mathematics."

Notwithstanding the thoroughness with which this programme has, on the whole, been carried out, the writer cannot help feeling that the result is not completely satisfactory, and that this is largely due to the narrow treatment rendered necessary by the limitations which the author has imposed on himself. The phase rule itself merely gives the connection between the number of components of a system, the number of phases, and the number of external factors of equilibrium (pressure and temperature usually) on the one hand, and the number of independently variable factors of equilibrium on the other. It gives no further information about the system whatever. The theorem of Le Chatelier permits us to predict the direction in which the equilibrium will be displaced by a change in one of the factors of equilibrium. A study of chemical equilibrium from this limited point of view, almost of necessity resolves itself into an enumeration of the different possible cases (as, for example, a system containing one component and one phase, which may be liquid, solid, or gaseous; a system containing one component and two phases, and so on, considering in turn systems containing two, three, or more components), together with a description of the special cases which have been investigated, in so far as they illustrate the two guiding principles above mentioned. This is, on the whole, the plan adopted by the author, and his discussion of many possible cases of which no actual example has been investigated, will be of much service in indicating profitable lines for research.

The equilibria between solids and solutions, and between two solutions are very fully treated; whilst the dissociation of calcium carbonate and of ammonium chloride are the only ones of their kind mentioned, equilibria in homogeneous gaseous or liquid systems are omitted, and the metallic alloys receive somewhat scanty attention. Some of these omissions are doubtless due to the fact that the study of the cases in question is not materially assisted by the application of the phase rule.

The distinction which is made between solvent and dissolved substance (for which latter the author adopts the not very euphonious term "solute") appears to the writer to be purely conventional, and not, as Prof. Bancroft seems to think, a real difference. On pp. 36 and 37 we read:—

"In cases of limited miscibility there is no difficulty in telling which component is solvent and which solute; but when the two substances are consolute (miscible in all proportions), there is at present no sure way of deciding at what concentration the change takes place."

The introduction of a conception which is incapable of more accurate definition than the foregoing, can and does only obscure the subject. The distinction of solubility from fusion curves and the consequent differentiation of eutectic alloys from cryohydrates, seems to the writer to be unnecessary and undesirable. On p. 127 there is

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